

**What is claimed is:**

1. A biochip testing system, comprising:  
a light transmitter;  
5 a biochip having a plurality of cells each coated with a biological reagent;  
a recording medium for carrying the biochip; and  
a light receiver for receiving the light from the light transmitter acting with the  
biological reagent on the biochip, thereby the status of each cell of the biochip may be  
tested through the variations of the light before and after passing the biochip.
- 10 2. The biochip testing system of claim 1, wherein the biochip is transparent.
3. The biochip testing system of claim 1, wherein the biochip is non-transparent.
- 15 4. The biochip testing system of claim 1, wherein the light transmitter includes a  
light source.
5. The biochip testing system of claim 4, wherein the light source is a laser light  
source, a LED light source, a LD light source, a haloid light source, or an UV light.
- 20 6. The biochip testing system of claim 1, wherein the biochip is formed polymer  
material carrier, such as glass carrier, nylon carrier, or optical fiber carrier, with one  
end of each carrier being coated with biological reagents thereon and surrounded by  
an opaque cladding.
- 25 7. The biochip testing system of claim 6, wherein the optical fiber carrier is  
formed by gathering plural of plastic fibers, glass fibers, or quartz fibers.
8. The biochip testing system of claim 1, wherein the light receiver includes a  
30 photoelectric converter and a signal processing unit, where the photoelectric converter  
converted the light being received as an electronic signal, and the signal processing  
unit converted the electronic signal through current/voltage transform and  
analogue/digital transform as a digital signal and displayed on a monitor.

9. The biochip testing system of claim 1, where the light receiver is the one selecting from the group consisting of CMOS sensors, CCD array, CCDs, photodiode array, photodiodes, and PMT.

5 10. The biochip testing system of claim 8, wherein the electric signal may present on display of electronic devices, such as personal computer and notebook, or portable electronic devices, such as personal digital assistant (PDA), palm-size PC, or smartphone, through interface, such as IEEE 1394, USB included therein.

10 11. The biochip testing system of claim 8, wherein the electric signal may present on display of electronic devices, such as personal computer and notebook, or portable electronic devices, such as personal digital assistant (PDA), palm-size PC, or smartphone, in wireless.

15 12. The biochip testing system of claim 1, wherein the biochip is detachably adhered on the recording medium.

20 13. The biochip testing system of claim 1, wherein the light receiver is arranged in a single one or in matrix, so as to sensor the variation of light from the light source passing through or reflect from each cell of the biochip one-by-one or in array.

25 14. The biochip testing system of claim 1, wherein the light receiver further comprises a writing head for writing the variation sensed by the light receiver on the recording medium.

15. The biochip testing system of claim 1, wherein the recording medium is one selecting from the group consisting of magnetic disc, optical disc, or smart card.

30 16. A personal digital biochip assistant (PDBA), comprising the biochip testing system of any one of claims 1 to 15.

17. The personal digital biochip assistant of claim 16, wherein the PDBA presents its result in other electronic devices.

18. The personal digital biochip assistant of claim 16, wherein the PDBA is made all-in-one including display.

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## Abstract

The invention relates to a biochip testing system for testing the status of a biochip carried on a recording medium. The biochip testing system comprises: a  
5 light transmitter; a biochip including a plurality of cells coated with biological reagents; a recording medium for carrying the biochip; and a light receiver for receiving the light from the light transmitter passing through or reflect from the biochip. The invention also relates to a recording medium having the biochip thereon, and a personal digital biochip assistant having the biochip testing system.

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